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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SHAPIRO, LEONID

ART UNIT PAPER NUMBER

2629

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/722,594	Applicant(s) OUE ET AL.	
	Examiner Leonid Shapiro	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 7,8,18 and 23-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-22 and 31-38 is/are allowed.
- 6) ☒ Claim(s) 1-6,9-17,19,41 and 42 is/are rejected.
- 7) ☒ Claim(s) 2-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

1. Claims 7-8,18,23-30 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 09/16/06.

Notice that claim 8 depends on claim 7 and claims 24-30 depend on claim 23.

Drawings

2. Figure 17 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6,14,16-17,19,39-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Machida et al. (US Patent No. 6,753,844 B2).

As to claim 1, Machida et al. teaches a display device (See Col. 1, Lines 8-11), including a pair of substrates opposed to each other and provided with electrodes (See Fig. 1, items 26,28,32,34, Col. 9, Lines 16-31), at least one of substrates is light-transmissive and at least one surface of the substrates is provided an electrode (See Fig. 1, items 26,28, Col. 9, Lines 16-18), a spacer disposed between the substrates for retaining a space having a desired width (See Fig. 1, item 38, Col. 9, Lines 63-67), and at least one kind of group of electrostatic particles contained in the space between the substrates (See Fig. 1, items 22,24, Col. 9, Lines 11-15), the device being configured to display an image corresponding to an image signal voltage applied to the electrode of the substrates by causing the group of particles to travel in the space between the

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substrates by an electric field produced by the image signal voltage (See Fig. 1, items 28,34, Col. 9, Lines 26-34 and Col. 3, Lines 48-58),

comprising:

a particle utilization-promoting means for preventing the number of particles contributing to the display from decreasing, the particle utilization-promoting means provided so as to face the space in which the group of particles travel (See Fig. 1, item 28, Col. 9, Lines 33-36 and Col. 3, Lines 18-27).

As to claim 2, Machida et al. teaches a display device (See Col. 1, Lines 8-11), including a pair of substrates opposed to each other and provided with electrodes (See Fig. 1, items 26,28,32,34, Col. 9, Lines 16-31), at least one of substrates is light-transmissive and at least one surface of the substrates is provided an electrode (See Fig. 1, items 26,28, Col. 9, Lines 16-18), a spacer disposed between the substrates for retaining a space having a desired width (See Fig. 1, item 38, Col. 9, Lines 63-67), and at least one kind of group of electrostatic particles contained in the space between the substrates (See Fig. 1, items 22,24, Col. 9, Lines 11-15), the device being configured to display an image corresponding to an image signal voltage applied to the electrode of the substrates by causing the group of particles to travel in the space between the substrates by an electric field produced by the image signal voltage (See Fig. 1, items 28,34, Col. 9, Lines 26-34 and Col. 3, Lines 48-58),

comprising:

a vibration-generating portion provided so as to face a space in which the group of particles travel (See Fig. 1, item 28, Col. 9, Lines 33-36 and Col. 3, Lines 18-27).

As to claim 3,6 Machida et al. teaches the vibration-generating portion is provided on at least one of the substrates so as to face the space in which the group of particles travel (See Fig. 1, item 28, Col. 9, Lines 33-36 and Col. 3, Lines 18-27).

As to claims 4-5, Machida et al. teaches a first electrode and a second electrode to which the image signal voltage is applied are provided on one of the substrates (See Fig. 1, item 28, Col. 9, Lines 33-36 and Col. 3, Lines 18-27).

As to claim 14, Machida et al. teaches the group of particles are colored with at least one color (See Fig. 1, item 22, Col. 9, Lines 11-15).

As to claim 16, Machida et al. teaches vibration-generating portion also serves as at least one of the substrates (See Fig. 1, item 28, Col. 9, Lines 32-36).

As to claim 17, Machida et al. teaches in the first display state, a first image signal voltage is applied to the electrodes provided on the substrates to form a first electric field (See Fig.9, item DISPLAYING WHITE);

in the second display state, a second image signal voltage is applied to the electrodes provided on the substrates to form a second electric field having a different direction from that of the first electric field (See Fig.9, item DISPLAYING WHITE); and

an application of a high-frequency sine wave to the vibration-generating portion and an application of the second image signal voltage to the electrodes provided on the substrates are carried out when

performing rewriting from the first display state to the second display state (See Fig. 9, item INITIALIZING DRIVE, from Col. 11, Line 46 to Col.12, Line 13).

As to claim 19, Machida et al. teaches the application of the high-frequency sine wave voltage and the application of the second image signal voltage are carried out in different timing. (See Fig. 9, items INITIALIZING, WHITE).

As to claim 39, Machida et al. teaches a method of manufacturing a display device (See Col. 1, Lines 8-11), including a pair of substrates opposed to each other and provided with electrodes (See Fig. 1, items 26,28,32,34, Col. 9, Lines 16-31), at least one of substrates is light-transmissive and at least one surface of the substrates is provided an electrode (See Fig. 1, items 26,28, Col. 9, Lines 16-18), a spacer disposed between the substrates for retaining a space having a desired width (See Fig. 1, item 38, Col. 9, Lines 63-67), and at least one kind of group of electrostatic particles contained in the space between the substrates (See Fig. 1, items 22,24, Col. 9, Lines 11-15), the device being configured to display an image corresponding to an image signal voltage applied to the electrode of the substrates by causing the group of particles to travel in the space between the substrates by an electric field produced by the image signal voltage (See Fig. 1, items 28,34, Col. 9, Lines 26-34 and Col. 3, Lines 48-58), the method comprising:

a step to contain the group of particles in the space between the substrates; (See Figs. 8-9, items DISPLAYING WHITE, Col. 11, Lines 46-65); and

a step to generate vibration by the vibration-generating portion after

the particles containing step (See Figs. 8-9, items INITIALIZING DRIVE, Col. 12, Lines 2-13).

As to claim 40, Machida et al. teaches a method of manufacturing a display device (See Col. 1, Lines 8-11), including a pair of substrates opposed to each other and provided with electrodes (See Fig. 1, items 26,28,32,34, Col. 9, Lines 16-31), at least one of substrates is light-transmissive and at least one surface of the substrates is provided an electrode (See Fig. 1, items 26,28, Col. 9, Lines 16-18), a spacer disposed between the substrates for retaining a space having a desired width (See Fig. 1, item 38, Col. 9, Lines 63-67), and at least one kind of group of electrostatic particles contained in the space between the substrates (See Fig. 1, items 22,24, Col. 9, Lines 11-15), the device being configured to display an image corresponding to an image signal voltage applied to the electrode of the substrates by causing the group of particles to travel in the space between the substrates by an electric field produced by the image signal voltage (See Fig. 1, items 28,34, Col. 9, Lines 26-34 and Col. 3, Lines 48-58), the method comprising:

a step to contain at least one kind of plural charged colored particles in the space between the substrates (See Figs. 8-9, items DISPLAYING WHITE, Col. 11, Lines 46-65); and

a step to apply an AC voltage to at least the substrate-side electrodes to generate an alternating electric field in the space after the particles containing step (See Figs. 8-9, items INITIALIZING DRIVE, Col. 12, Lines 2-13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machida et al. in view of Holman et al. (US Patent No. 6,831,769 B2).

As to claim 9, Machida et al. does not disclosed a gas phase space.

Holman et al. teaches a gas phase space (See Col. 1, Lines 41-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teachings of Holman et al. into Machida et al. system in order to reduce cost.

As to claim 10, Holman et al. teaches the space in which the group of particles travel is a liquid phase space filled with an insulative solvent (See Fig.1, items 140,170, from Col. 12, Line 62 to Col. 13, Line 2).

As to claim 11, Holman et al. teaches capsules each containing the group of particles and the insulative solvent (in the reference is equivalent to polymeric binder) are disposed in the space between the substrates. (See Fig.1, items 140,170, from Col. 12, Line 67 to Col. 13, Line 2).

As to claims 12-13, Machida et al. teaches the particles composing the group of particles are aligned by an electric field applied between the

electrodes of the substrates according to the image signal voltage (See Fig. 1, items 28,34, Col. 9, Lines 26-34 and Col. 3, Lines 48-58).

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machida et al. in view of Hasegawa et al. (US Patent No. 6,373,461 B21).

Machida et al. does not disclosed vibration-generating portion includes of a piezoelectric material.

Hasegawa et al. teaches a vibration-generating portion includes of a piezoelectric material (See Fig. 4, item 208, Col. 7, Lines 36-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teachings of Hasegawa et al. into Machida et al. system in order to miniaturize (See Col. 1, Lines 49-53 in the Hasegawa et al. reference).

7. Claim 36-2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machida et al. in view of Harada et al. (US Patent No. 6,816,146 B2).

Machida et al. does not disclosed a porous particles.

Harada et al. teaches porous particles (See Col. 7, Lines 17-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teachings of Harada et al. into Machida et al. system in order to increase contrast (See Col. 4, Lines 10-14 in the Harada et al. reference).

8. Claim 38-2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machida et al. in view of Sakamaki et al. (US Patent No. 6,836,304 B2).

Machida et al. does not disclosed the surfaces the particles, or at least a portion of the surface of a member on which the particles adhere are subjected to a water-repelling treatment.

Sakamaki et al. teaches the surfaces the particles, or at least a portion of the surface of a member on which the particles adhere are subjected to a water-repelling treatment (See Fig. 42C, item 50a, Col. 34, Lines 61-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teachings of Sakamaki et al. into Machida et al. system in order to display image repeatedly (See Col. 1, Lines 10-14 in the Sakamaki et al. reference).

Allowable Subject Matter

9. Claims 20-22, 31-35, 36-20,37-20,38-20 are allowed.

Relative to independent claim 20 the major difference between the teaching of the prior art of record (Machida et al.) and the instant invention is that a partition wall-side electrode provided on the partition wall for each of the pixels and connected to the voltage applying means.

Claims 21-22, 31-35, 36-20,37-20,38-20 depend on claim 20.

10. Claim 37-2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claim 37-2 the major difference between the teaching of the prior art of record (Machida et al.) and the instant invention is that at least one kind of the particles is composed of particles composed of core particles and micro-particles having a diameter of from about 1/1000 to about 1/100 of the diameter of the core particles and fixed to the core particles in a manner to cover the surface of the core particles.

Telephone Inquire


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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